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Applicant: R. Cross  
Serial No.: 10/728,076  
Filed: December 4, 2003  
For: Method And Apparatus For Multiple Input Diversity Decoding  
Docket No./Attorney: 03CR101/KE  
Item: Amendment comprising of 13 pages

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**AUG 02 2005**

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: ) GROUP ART UNIT: 2819  
Ray Lynn Cross ) EXAMINER: P. G. Wamsley  
SERIAL NO.: 10/728,076 ) DOCKET REF.: 03CR101/KE  
FILED: December 4, 2003 ) SUBMITTED: August 2, 2005  
FOR: Method and Apparatus for Multiple Input Diversity Decoding

**AMENDMENT A**

Hon. Commissioner of Patents and Trademarks  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Examiner's Office Action dated June 8, 2005, please  
amend the above-identified application as follows:

Amendments to the claims are shown in the Listing of the Claims that begins on  
page two of this paper.

Remarks begin on page eleven of this paper.

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**LISTING OF THE CLAIMS**

This listing of claims will replace all prior versions and listings of the claims in this application:

1. (Original) A multiple input diversity decoding apparatus, comprising:

a first input line;

a second input line;

a first diversity decoder, comprising;

a first partial decoder, coupled with said first input line;

a second partial decoder, coupled with said first input line, said second partial decoder being communicatively coupled with said first partial decoder; and

said first partial decoder and said second partial decoder being configured to perform an iterative decoding of information input to said first diversity decoder via said first input line; and

a second diversity decoder, communicatively coupled with said first diversity decoder, comprising;

a third partial decoder, coupled with said second input line;

a fourth partial decoder, coupled with said second input line, said fourth partial decoder being communicatively coupled with said third partial decoder; and

said third partial decoder and said fourth partial decoder being configured to perform an iterative decoding of information input to said second diversity decoder via said second input line; and

wherein said first diversity decoder and said second diversity decoder are configured to perform an iterative decoding of information input into the multiple input diversity decoder apparatus via said first input line and said second input line.

Claims 2 and 3 cancelled

4. (Original) The multiple input diversity decoding apparatus of claim 1, wherein said first diversity decoder further comprises:

a fifth partial decoder, coupled with said first input line, wherein said fifth partial decoder is communicatively coupled with said first partial decoder; and

said first partial decoder, said second partial decoder and said fifth partial decoder being configured to perform an iterative decoding of information input to said first diversity decoder via said first input line.

5. (Original) The multiple input diversity decoding apparatus of claim 4, wherein said fifth partial decoder is also communicatively coupled with said second partial decoder.

6. (Original) The multiple input diversity decoding apparatus of claim 4, wherein said second diversity decoder further comprises:

a sixth partial decoder, coupled with said second input line, said sixth partial decoder being communicatively coupled with said third partial decoder; and

said third partial decoder, said fourth partial decoder and said sixth partial decoder being configured to perform an iterative decoding of information input to said second diversity decoder via said second input line.

7. (Original) The multiple input diversity decoding apparatus of claim 6, wherein said sixth partial decoder is also communicatively coupled with said fourth partial decoder.

8. (Original) The multiple input diversity decoding apparatus of claim 1, further comprising:

a third input line;

a third diversity decoder, communicatively coupled with said second diversity decoder, comprising;

a fifth partial decoder, coupled with said third input line; and

a sixth partial decoder, coupled with said third input line, said sixth partial decoder being communicatively coupled with said fifth partial decoder;

wherein said fifth partial decoder and said sixth partial decoder are configured to perform an iterative decoding of information input to said third diversity decoder via said third input line; and

wherein said first diversity decoder, said second diversity decoder and said third diversity decoder are configured to perform an iterative decoding of information input into the multiple input diversity decoder apparatus via said first input line, said second input line and said third input line.

9. (Original) The multiple input diversity decoding apparatus of claim 8, wherein said third diversity decoder is also communicatively coupled with said first diversity decoder.

10. (Original) The multiple input diversity decoding apparatus of claim 8, further comprising:

a seventh partial decoder, located in said first diversity decoder, wherein said seventh partial decoder is communicatively coupled with said second partial decoder; and

wherein said first partial decoder, said second partial decoder and said seventh partial decoder are configured to perform an iterative decoding of information input to said first diversity decoder via said first input line.

11. (Original) The multiple input diversity decoding apparatus of claim 10, further comprising:

an eighth partial decoder, located in said second diversity decoder, wherein said eighth partial decoder is communicatively coupled with said fourth partial decoder; and

wherein said third partial decoder, said fourth partial decoder and said eighth partial decoder are configured to perform an iterative decoding of information input to said second diversity decode via said second input line.

12. (Original) The multiple input diversity decoding apparatus of claim 11, further comprising:

a ninth partial decoder, located in said third diversity decoder, wherein said ninth partial decoder is communicatively coupled with said sixth partial decoder; and

wherein said fifth partial decoder, said sixth partial decoder and said ninth partial decoder are configured to perform an iterative decoding of information input to said third diversity decoder via said third input line.

13. (Original) A method for diversity decoding of multiple inputs, comprising the steps of:

receiving an information segment via a first input line;

receiving an information segment via a second input line, said step of receiving an information segment via a second input line being accomplished essentially simultaneously with said step of receiving an information segment via a first input line;

performing an iterative decoding of the information segment received via the first input line;

performing an iterative decoding of the information segment received via the second input line, said step of performing an iterative decoding of the information segment received via the second input line being accomplished essentially simultaneously with said step of performing an iterative decoding of the information segment received via the first input line; and

performing an iterative decoding of information segments determined via said step of performing an iterative decoding of the information segment received via the first input line and said step of performing an iterative decoding of the information segment received via the second input line.

14. (Original) The method of claim 13, further comprising the step of receiving an information segment via a third input line, said step of receiving an information segment via a third input line being accomplished essentially simultaneously with said step of receiving an information segment via a first input line.

15. (Original) The method of claim 14, further comprising the step of performing an iterative decoding of the information segment received via the third input line, said step of performing an iterative decoding of the information segment received via the third input line being accomplished essentially simultaneously with said step of performing an iterative decoding of the information segment received via the first input line.

16. (Original) The method of claim 15, wherein the step of performing an iterative decoding of information segments determined via said steps of performing an iterative decoding of the information segment received via the first input line and the second input line, further comprises performing an iterative decoding of information segments determined via said step or performing an iterative decoding of the information segment received via the third input line.

17. (Withdrawn) A multiple input diversity decoding apparatus, comprising:

a first input line;

a first partial decoder, coupled with said first input line;



a second partial decoder, coupled with said first input line, said second partial decoder being communicatively coupled with said first partial decoder;

a second input line;

a third partial decoder, coupled with said second input line, said third partial decoder being communicatively coupled with said second partial decoder; and

a fourth partial decoder, coupled with said second input line, said fourth partial decoder being communicatively coupled with said third partial decoder;

wherein said first partial decoder, said second partial decoder, said third partial decoder and said fourth partial decoder are configured to perform an iterative decoding of information input into the multiple input diversity decoder apparatus via said first input line and said second input line.

18. (Withdrawn) The multiple input diversity decoding apparatus according to claim 17, wherein said second partial decoder is also communicatively coupled with said fourth partial decoder.

19. (Withdrawn) The multiple input diversity decoding apparatus according to claim 18, wherein said first partial decoder is also communicatively coupled with said third partial decoder.

20. (Withdrawn) The multiple input diversity decoding apparatus according to claim 17, wherein said first partial decoder is also coupled with said second input line.

21. (Withdrawn) The multiple input diversity decoding apparatus according to claim 20, wherein said second partial decoder is also coupled with said second input line.

22. (Withdrawn) The multiple input diversity decoding apparatus according to claim 21, wherein said third partial decoder is also coupled with said first input line.

23. (Withdrawn) The multiple input diversity decoding apparatus according to claim 22, wherein said fourth partial decoder is also coupled with said first input line.

24. (Withdrawn) The multiple input diversity decoding apparatus according to claim 23, wherein said second partial decoder is also communicatively coupled with said fourth partial decoder.

25. (Withdrawn) The multiple input diversity decoding apparatus according to claim 24, wherein said first partial decoder is also communicatively coupled with said third partial decoder.

26. (Withdrawn) A multiple input diversity apparatus, comprising:

means for inputting a first information segment;

means for inputting a second information segment;

means for iteratively decoding a first information segment received via said means for inputting a first information segment; and

means for iteratively decoding a second information segment received via said means for inputting a second information segment;

wherein said means for iteratively decoding a first information segment and said means for iteratively decoding a second information segment are communicatively coupled to each other and are configured to perform an iterative

decoding of information input into the multiple input diversity decoder apparatus via said means for inputting a first information segment and said means for inputting a second information segment.

27. (Withdrawn) The multiple input diversity decoding apparatus according to claim 26, wherein said means for iteratively decoding a first information segment comprises:

first means for partially decoding, coupled with said means for inputting a first information segment; and

second means for partially decoding, coupled with said means for inputting a first information segment;

wherein said first means for partially decoding and said second means for partially decoding are communicatively coupled and are configured to iteratively decode an information segment received via said means for inputting a first information segment.

28. (Withdrawn) The multiple input diversity decoding apparatus according to claim 27, wherein said means for iteratively decoding a second information segment comprises:

third means for partially decoding, coupled with said means for inputting a second segment; and

fourth means for partially decoding, coupled with said means for inputting a second information segment;

wherein said third means for partially decoding and said fourth means for partially decoding are communicatively coupled and are configured iteratively decode an information segment received via said means for inputting a second information segment.

**REMARKS**

Claims 2 and 3 have been cancelled by this amendment. Claim 1 and 4-16 are currently pending.

The Applicant has reviewed the Examiner's Office Action dated June 8, 2005. The Applicant hereby provides the following remarks concerning the Examiner's objection to the drawings.

The Examiner has objected to the drawings under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first receiver apparatus and the second receiver apparatus must be shown or cancelled from claims 2 and 3. If these elements are not cancelled from claims 2 and 3, the specification [Page 7, lines 13-14] needs to be amended to provide a proper description of them. No new matter should be entered.

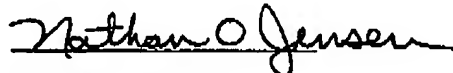
The Applicant has cancelled claims 2 and 3 to overcome the objection to the drawings.

The Examiner has allowed claims 1-16. The Applicant would like to thank the Examiner for this allowance.

**CONCLUSION**

The Applicant has cancelled claims 2 and 3 to overcome the objection to the drawings. In light of the foregoing, consideration of the amended claims is hereby requested, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,



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